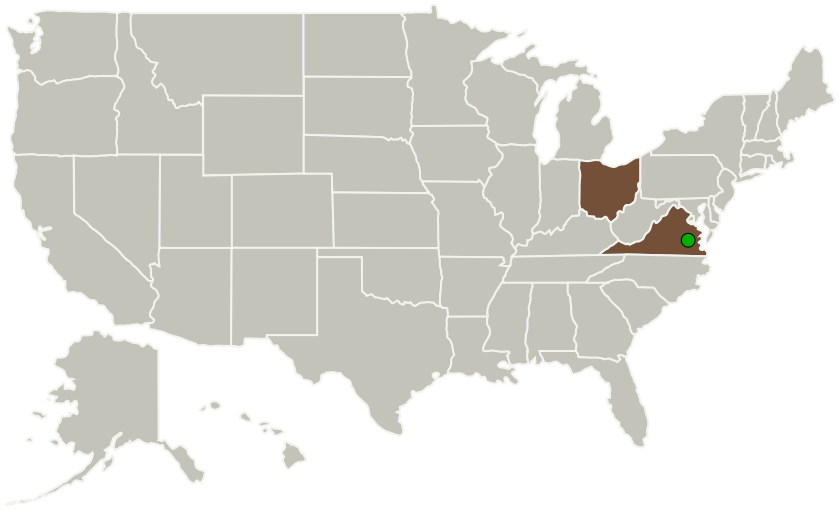
Improved Metal-Polymeric Laminate Radiation Shielding, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

In this proposed Phase I program, a multifunctional lightweight radiation shield composite will be developed and fabricated. This structural radiation shielding will be a high strength, syntactic polymeric where the polymer is filled with high strength low Z material. Specifically, this program will produce structural Polymeric aluminum alloy-LiBH4 composite materials layups. These structural composites are derived from similar structures Powdermet currently produces using hollow spheres (lightweight insulating structures), and more recently, energetic materials (such as KClO4). These materials serve to provide combined structural properties, thermal insulation, mass-efficient radiation shielding, and collision and micrometeroid impact energy adsorption.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Powdermet, Inc.	Lead Organization	Industry	Euclid, Ohio
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

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Primary U.S. Work Locations	
Ohio	Virginia

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140092)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Powdermet, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

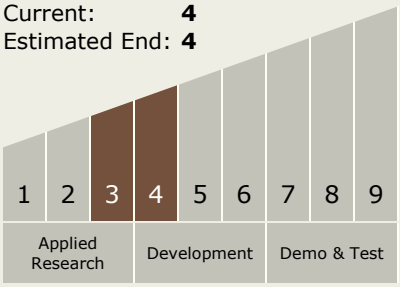
Carlos Torrez

Principal Investigator:

Brian Doud

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System